



ATTACHMENT A

Clean Replacement/New Claims (entire set of pending claims)

Following herewith is a clean copy of the entire set of pending claims.

- Sub
C1*
1. (amended) A confocal endoscope or microscope including:
a light source of coherent light for illuminating a sample;
a beam splitter; and
light receiving means, (1) wherein an incident beam of light from said light source is directed onto said beam splitter and hence onto said sample, and (2) wherein light returning from said sample and incident on said beam splitter is deviated or displaced by said beam splitter by a small angle or distance relative to said incident beam and is then received by said light receiving means, said light receiving means being located to receive said returning light and near said light source.
 2. A confocal endoscope or microscope as claimed in claim 1, including an optical head and said light source is located in or on said head.
 3. A confocal endoscope or microscope as claimed in claim 2, including heating means for maintaining said head at a temperature substantially equal to that of said sample.
 4. A confocal endoscope or microscope as claimed in claim 1, wherein said light source and said light receiving means are on a single mounting means.
 5. A confocal endoscope or microscope as claimed in claim 4, wherein said beam splitter is mounted on said mounting means.
 6. A confocal endoscope or microscope as claimed in claim 4, wherein said mounting means is moveable for scanning said light source.

7. A confocal endoscope or microscope as claimed in claim 4, wherein said mounting means includes a reed.

8. (amended) A confocal endoscope or microscope as claimed in claim 4, wherein said mounting means is an electromagnetically vibrated reed.

9. A confocal endoscope or microscope as claimed in claim 1, wherein said light source and said light receiving means are adjacent or touching.

10. (amended) A confocal endoscope or microscope as claimed in claim 1, wherein said light source is an optical fiber tip.

11. (amended) A confocal endoscope or microscope as claimed in claim 1, wherein said beam splitter includes a plurality of optical elements selected from prisms, lenses, or both prisms and lenses.

12. (amended) A confocal endoscope or microscope as claimed in claim 11, wherein said plurality of optical elements provide net deviation or translation, so that said coherent light and said light returning from said sample respectively emerge from said plurality of optical elements substantially parallel to and optically coaxial with it's a respective path immediately before impinging said plurality of optical elements.

13. (amended) A confocal endoscope or microscope as claimed in claim 11, wherein said plurality of optical elements is arranged to focus confocal return stokes fluorescence to form a line, said line forming a spectrum in which shorter wavelength fluorescence is located towards a first end of said line closer to said light source, while longer wavelength fluorescence is located towards a second end further from said light source.

14. A confocal endoscope or microscope as claimed in claim 1, including means to allow light on either side of a spectral line in said returning light to be included with light from said spectral line when said returning light impinges on said light receiving means.

15. A confocal endoscope or microscope as claimed in claim 14, wherein said means is controlled by a mechanism which occludes light which is more distant in wavelength than a desired amount from said spectral line, to allow control of depth of field isolation.

16. (amended) A confocal endoscope or microscope as claimed in claim 14, including optical elements to divert chosen wavelength portions of said spectral line to one or more photodetectors to give different spectral channels for imaging.

17. A confocal endoscope or microscope as claimed in claim 1, including at least one optical waveguide channel to convey said returning light to said photodetectors.

18. A confocal endoscope or microscope as claimed in claim 1, including a laser and an optical waveguide to convey light from said laser to said light source.

19. A confocal endoscope or microscope as claimed in claim 1, including a first optic waveguide to convey light to said specimen and at least one second optic waveguide channel to convey said returning light to said photodetectors, and said beam splitter is disposed in said head between said first and second optic waveguides.

20. (amended) A confocal endoscope or microscope as claimed in claim 1, including a return fiber and wherein said beam splitter is located between a light exit area of said return fiber and said photodetectors, to provide spectral separation after said returning light exits said fiber.

21. A confocal endoscope or microscope as claimed in claim 1, including an aperture slit moveable in front of said photodetectors simultaneously with said scanning to compensate for changes in beam splitter deviation.

22. A confocal endoscope or microscope as claimed in claim 11, wherein said plurality of prisms and/or lenses include at least one apochromatic lens.

23. A confocal endoscope or microscope as claimed in claim 11, wherein said prisms and/or lenses include an SF 11 or SF 59 prism.

Sub 23 Contd
24. (amended) A method for performing confocal endoscopy or microscopy including the steps of:

illuminating a sample by means of an incident or excitatory beam of coherent light; and

deviating or displacing light returning from said sample by a small angle or distance relative to said incident beam.

25. A method as claimed in claim 24, including receiving or detecting said returning light at a point close to a source of said incident or excitatory beam.

26. A method as claimed in claim 24, wherein said deviating or displacing of said light returning from said sample is effected by means of a beam splitter.

42. A confocal endoscope or microscope as claimed in claim 1, wherein said light source comprises a mirror located in the path of the returning light for directing light towards said sample, wherein said mirror has a smaller solid angle than said returning light to only partially occlude reception of said returning light by said light receiving means.

43. A confocal endoscope or microscope as claimed in claim 42, wherein said mirror and said light source are provided on a single piece of silicon and said mirror comprises an etched mirror surface of the silicon.

Sub
44. (amended) A method for performing confocal endoscopy or microscopy including the steps of:

illuminating a sample by means of an incident or excitatory beam of coherent light and thereby inducing a broader beam of returning light; and
detecting a portion of said returning light adjacent to or near said incident beam.

Cont'd
A1
45. A method as claimed in claim 44, including directing said incident light towards said sample by means of a mirror located in the path of said returning light, wherein said mirror has a smaller solid angle than said returning light to only partially occlude reception of said returning light.

46. A method as claimed in claim 45, wherein said mirror and the source of said incident light are provided on a single piece of silicon and said mirror comprises an etched mirror surface of the silicon.

A2
47. (new) A confocal endoscope or microscope as claimed in claim 16, wherein the optical elements also divert light close in wavelength to said spectral line.